INSTALLATION MANUAL

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1 Precaution

Warning

- This manual is an essential integral part of this equipment. Please read it carefully.
- Properly keep this manual for use during the maintenance.
- This lift is only used for its clearly designated purpose. Never use it for other purposes.
- The manufacturer is not responsible for any damage or injury caused by improper use or use for other purposes.

Precautions for the Installation and Adjustment:

- Before the installation and adjustment, carefully read this manual and the user's manual. Without the permission of the manufacturer or not following the requirement of the manual, any changes on the machine parts and its usage may cause direct or indirect damage to the machine and injury on operators.
- To do the installation and adjustment, the personnel must have certain electrical knowledge.
- The operators must undergo special training and are qualified.
- Fix and install the lift on the stable concreted floor.
- The lift shall be installed in a sufficient space so that the operation is not restricted.
- Don't expose the lift to the extreme temperature and humidity environment. Avoid installation beside the heating equipment, water tap, air humidifier or stove.
- Don't install the lift in front of the window where the sunlight can shine directly. When it's unavoidable, use curtain to shield the sunlight.
- The manufacturer reserves the right to make design changes or add improvements to its product line without notice.
- Before installation, carefully check the packing list of lift. In case of any question, please contact the distributor or LAUNCH immediately.

2 Structure and Working Principle

2.1 Structure Schematic Diagram

The structure diagram of TLT235SBA (TLT240SBA) floor-plate 2-post lift is as follows (Fig. 1, Fig. 2):

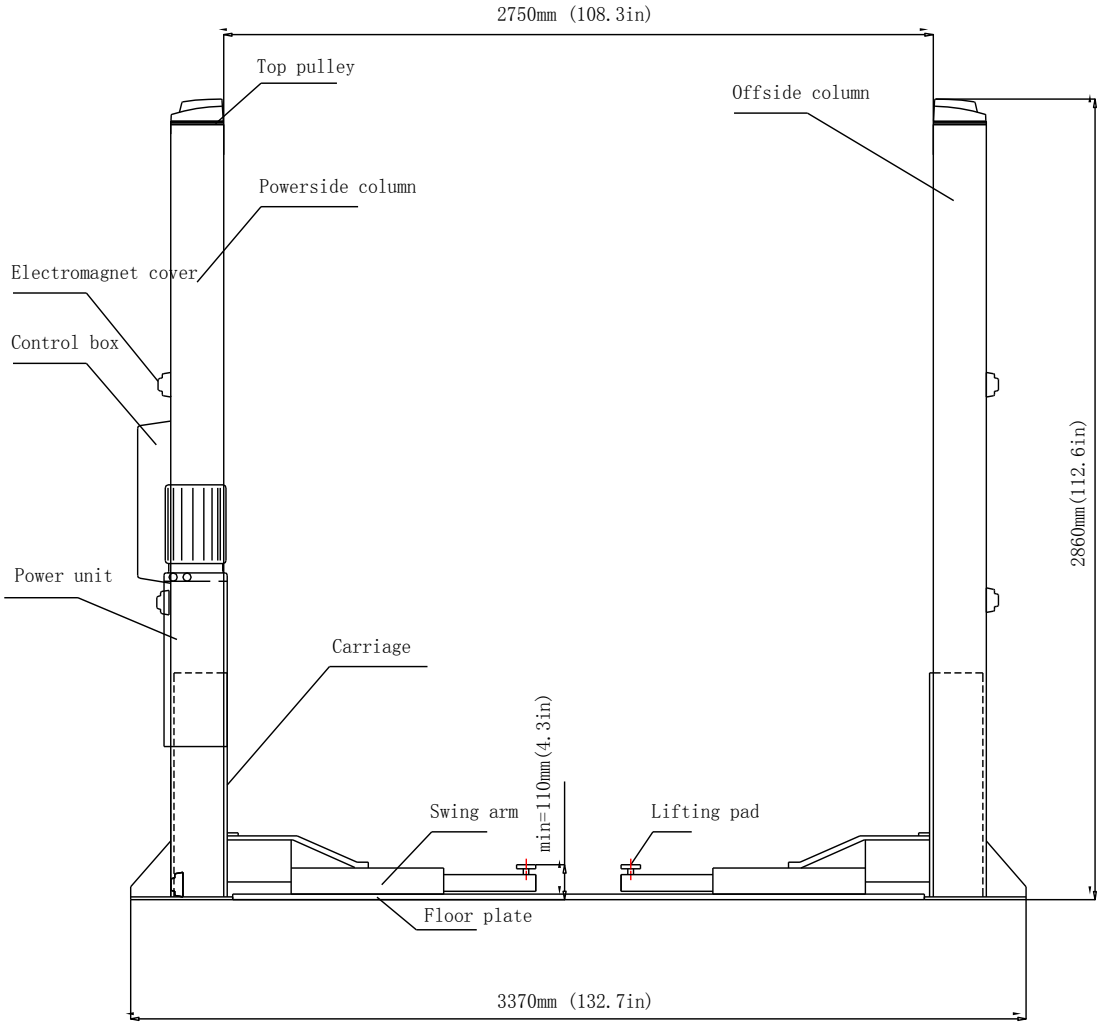


Fig. 1

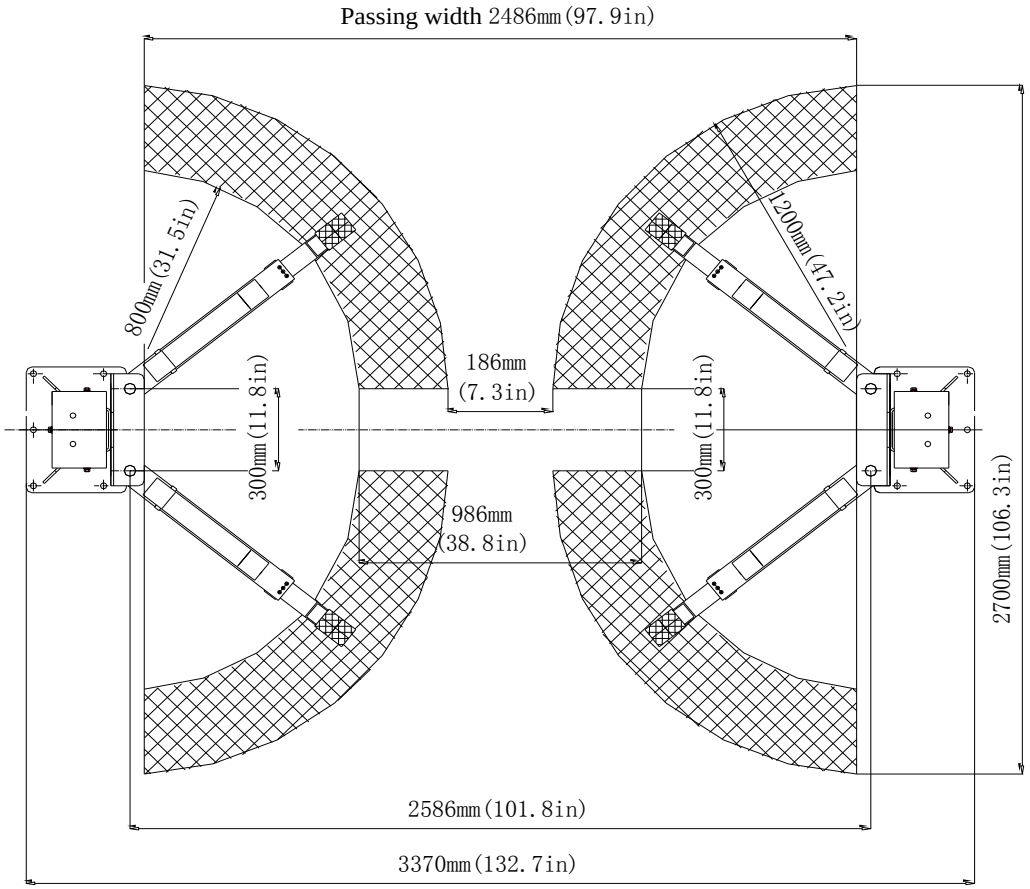


Fig. 2

2.2 Main Structure and Principle of the Equipment

- Lifting mechanism: Each of the two columns has one hydraulic cylinder respectively. When the power unit works, the hydraulic oil gets into the lower chamber of the cylinder, forcing the piston rod moves upward. At this time, the carriage moves upward through the chain.
- Supporting mechanism: When the vehicle enters into the working area, adjust the position of two-stage telescopic swing arms to make the lifting pad near the correct lifting point of the vehicle, and then adjust the screw height below the pad to adapt to different heights of vehicle chassis.
- Balancing mechanism: To keep the balance during the lifting and lowering process, the lift uses two steel cables to interconnect two carriages, forcing the carriages to rise and descend synchronously. If the carriages and swing arms are not on the same level, adjust the screw at the end of the steel cable, making the swing arms at the same level (equal position from the floor). At this time, the steel cables must be adjusted tightly with equal tension, otherwise the equalization can't be ensured.
- Electromagnet safety mechanism: On each of the two columns, two safety lock devices are installed respectively. During the lifting process, the safety devices start to operate automatically and ensure reliable safety. Since two columns have electromagnet safety devices, they can provide double safeties.
- Working principle of electromagnet safety mechanism: When the electromagnet is not actuated, the upper end of safety plate always attaches to the safety orifice closely. When the carriage rises, the safety orifice utilizes its inclined angle to push away the safety plate and rises progressively. In case of failure during the moving of the carriage, the rapid falling will occur, then the safety plate will block into the safety orifice,

preventing the falling of the carriage (Fig. 3). When the electromagnet is actuated, the safety plate is released for carriage lowering (Fig. 4).

- To prevent the vehicle slip, the swing arm is installed with positioning mechanism, making the swing arm capable of automatic locking during operation.
- Safety scope: The safety lock mechanism is effective from the height of lifting pad 450mm to 1900mm.

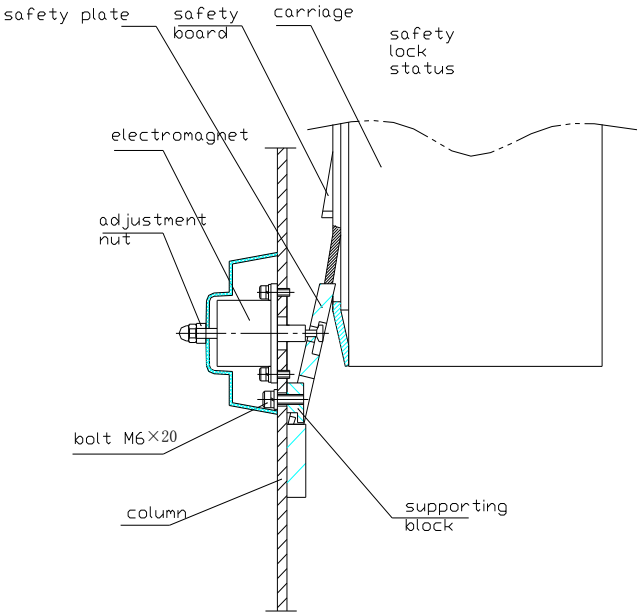


Fig. 3

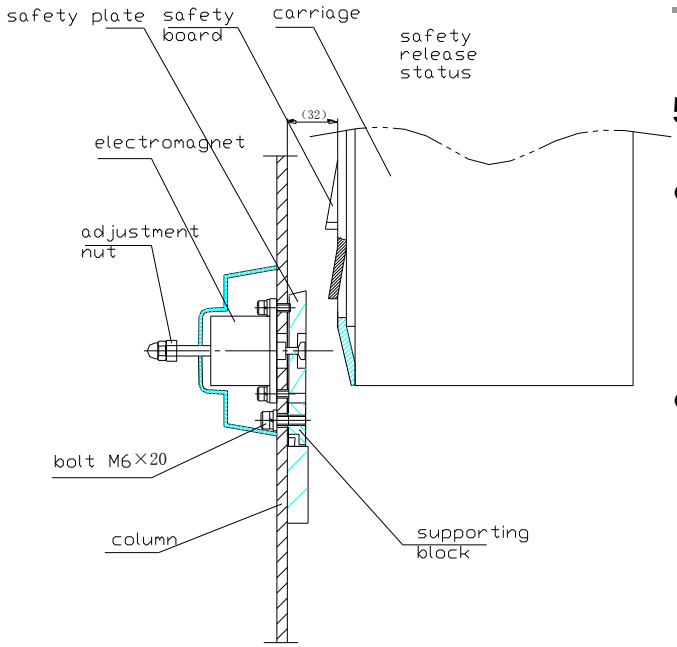


Fig. 4

3.Tools for Installation and Adjustment

To ensure proper installation and adjustment, please prepare the following tools:

Tool	Model
Leveling instrument	Carpentry type
Chalk line	Min 4.5m
Hammer	1.5kg
Medium crescent wrench	40mm
Open-end wrench set	11mm-23mm
Ratchet socket set	
Flat screwdriver	150mm
Rotary hammer drill	20mm
Concrete drill-bit	¢ 19mm

4. Unpacking

- Open the packing box; remove the packing materials and inspect the lift for any sign of shipment damage. Check by packing list to see if the main parts and accessories are complete.
- Keep the packing materials away from the children to avoid danger; if the packing materials cause the pollution, they shall be treated properly.

5. Installation

5.1 Important notice

- The wrong installation will cause the lift damage or personal injury. The manufacturer will not undertake any responsibilities for any damage caused due to incorrect installation and usage of this equipment, whether directly or indirectly.
- The correct installation location shall be “horizontal” floor to ensure the horizontal lifting. The slightly slope floor can be corrected by proper shimming. Any big slope will affect the height of the lifting pad when at the bottom or the horizontal lifting. If the floor is of questionable slope, consider a visual inspection, or pour a new horizontal concrete slab if possible. In short, under the optimum horizontal lifting status, the level of the lifting relies on the level

of the floor where it is installed. Don't expect to compensate for the serious slope.

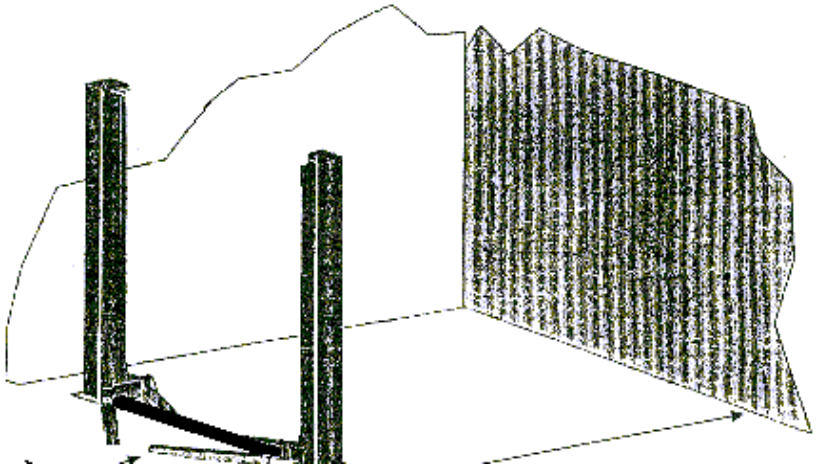
- Don't install the lift on any asphalt surface or any surface other than concrete. The lift must be installed on concrete floor conforming to the minimum requirement showed in this manual. Don't install the lift on the concrete with seams or crack and defect. Please check together with the architect.
- Without the written approval of the architect, don't install the lift on a second floor with basement.
- Overhead obstruction: The lift installation area can't have any overhead obstruction, such as heater, building support, electrical pipe, etc.
- Concrete drilling test: The installation personnel can test the concrete thickness at each site by drilling test. If several lifts are installed at one place, it is preferred to make drilling test in each site.
- Power supply: Get ready the power supply before the installation. All the electric wiring and connecting should be performed by a certified electrician.

5.2 Installation Procedure

5.2.1 Selecting installation site

Selecting installation site based on the following conditions:

- If the thickness of the whole ground concrete is greater than 250mm, the lift can be installed directly.
- If the thickness of the whole ground concrete is less than 250mm, the concrete slab must be made. The minimum thickness of the concrete slab is 250mm, with 20 days of minimum curing time.
- The concrete slab shall have steel bar reinforcement and must be leveled.
- Check the possible obstruction, e.g. low ceiling, top pipeline, working area, passage, exit, etc.
- The front and back of the lift should be reserved with sufficient space to accommodate all the vehicles (Fig. 5). From the floor to the top, there should be not less than 3.8 meters space.



Entrance Recommended 4.0m

Fig. 5

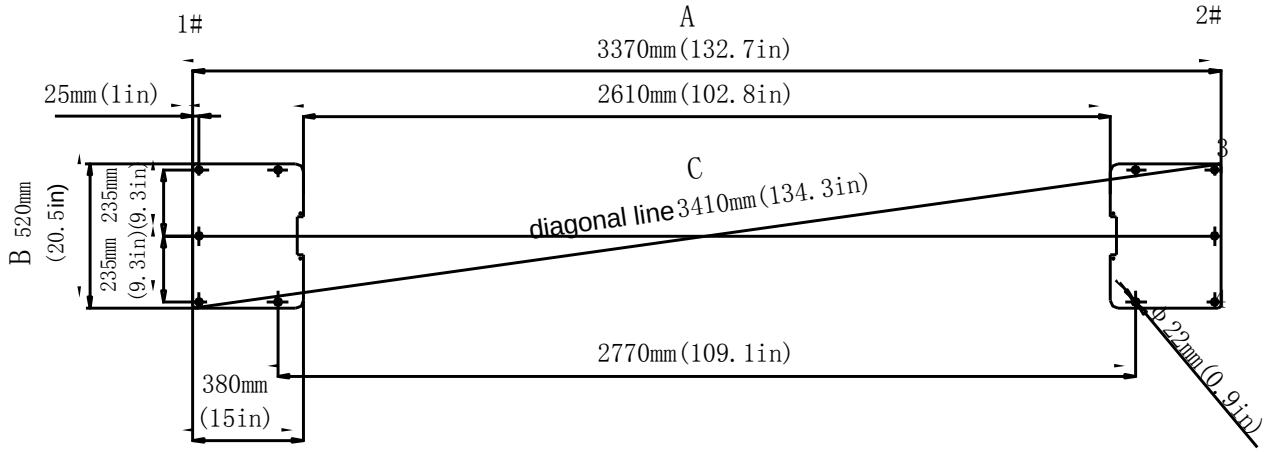


Fig 6

5.2.2 Base plate layout

As shown in Fig. 6:

- With total width (A) as the basis, draw two parallel lines (#1 and #2) on the concrete slab, with the error within 3mm.
- Determine the powerside column location on any chalk line, and mark the total width (B) of the base plate. Mark the points 3 and 4.
- Starting from point 3, draw one diagonal line (C) to the point 5 forming a triangle. In this way, the #1 and #2 lines can determine the location of the two columns.

⚠ ***Note:***

- ***All the dimensions are based on the external border of the base plate.***

Ensure the overall error is controlled within 6mm. In this way, the difficulties in the final assembly, or early wear or non-alignment of the chain can be eliminated. The marking and layout is very important. If it is inaccurate, there will be problems during the final assembly and operation.

5.2.3 Install the powerside column

First raise the powerside column upper right to the location. Align the base plate of column with the chalk line layout. Guided by the hole on the base plate of the column, drill the holes into the concrete slab and use five concrete anchor bolts to fix it onto the ground. During the drilling process, ensure no movement of the column from the chalk line (Fig. 7).

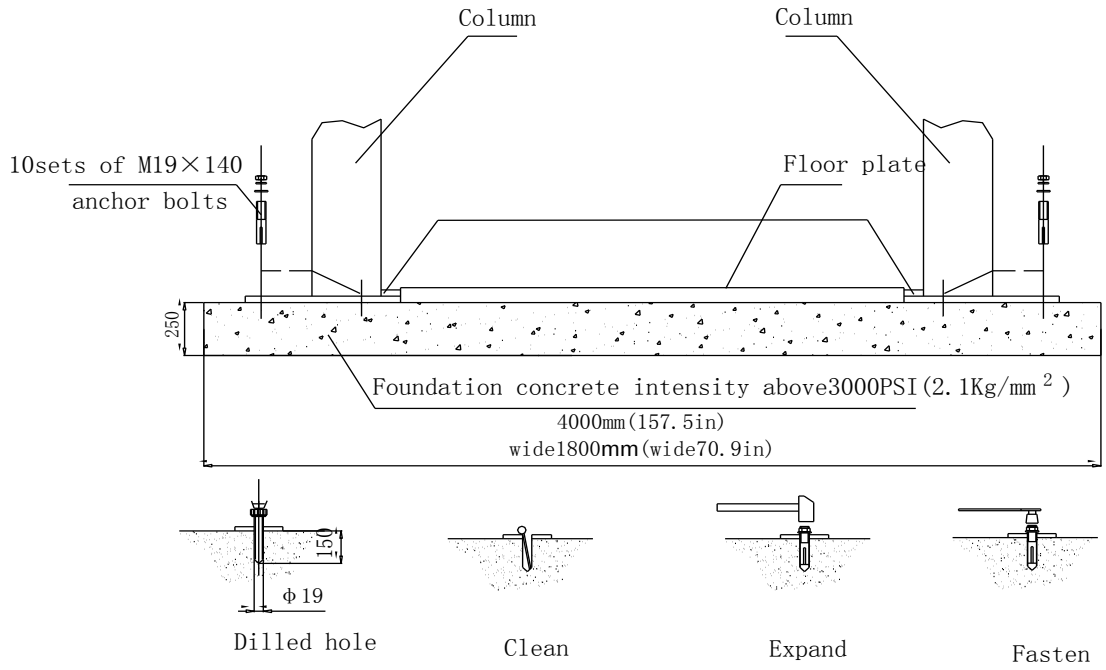


Fig. 7

⚠ ***Note:***

✧ ***Use sharp Φ19mm concrete drill-bit to drill the holes. Don't ream the hole or allow the drill to wobble. Use proper tool to remove the dust from the hole. The depth of the hole is the same as that of the anchor bolt. Insert the anchor bolt and make the washers lean against the base of the column. If shimming is required, enough thread must be left.***

To get the correct and safety installation, please follow the following installation steps.

- Wear the safety goggles.
- Use hard alloy drill-bit.
- Don't use the drill-bit with wearing exceeding the tolerance.
- The drill and concrete surface should be kept perpendicular.
- Let the drill work itself. Don't apply the extra force, and don't ream the hole or allow the drill to wobble.
- The drilling depth of hole is based on the length of anchor bolt. The distance from the bolt head to the concrete floor should be more than twice of the bolt diameter.
- Remove the dust from the hole.
- Gently tap the bolt into the hole till the washer rests against the base plate of column.

✧ ***When fastening the anchor bolt, only use the (torque) wrench, and don't use impact tool for fastening.***

✧

Insert proper shims under the base of column if necessary, making the column vertical.

⚠ ***Note: The thickness of shims shouldn't exceed 5mm.***

- Tighten the bolt.

5.2.4 Install the floor plate

Position the offside column at the designated chalk line location, carefully making the base align with the chalk line layout. Insert the floor plate into the gaps of the two columns.

⚠ ***Note:***

✧ ***Since the offside column is not fixed to the ground, you must operate carefully to avoid the falling of the column.***

✧ ***The wire protective pipe on the floor plate must be in same direction with the pipe on the column near the base. And the floor plate would be placed in front position.***

5.2.5 Install the offside column

- Drill holes and install the offside column following

the same procedures as outlined in 5.2.3

5.2.6 Install and adjust the balancing steel cables

- Raise the two carriages to the safety locking position (make sure that the safety locks on each column are fully engaged before attempting to install cables), and two carriages are in equal position from the floor (same height). Install the two steel cables as shown in Fig. 8.
- Adjust the tension of cables through the adjustment nuts on each end of steel cable. The steel cables should be tight in equal tension. Each steel cable should be ensured in the pulley when adjusting tightly, otherwise the steel cable will be damaged.

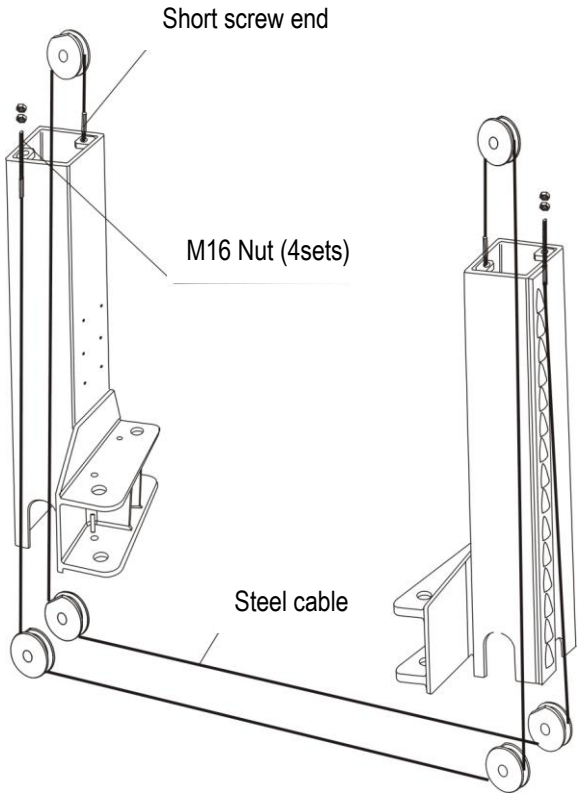


Fig. 8

Note:

- ✧ ***Before operating the lift, re-check the balancing steel cables and ensure they are not wrongly installed. Ensure the steel cables still in the pulley.***
- ✧ ***The two steel cables are required to adjust to certain uniform tension to ensure the two carriages move synchronously.***

5.2.7 Install the power unit and hydraulic lines

- Use two M10 bolts and washers to fix the power unit as shown in Fig. 9, install the hydraulic line, and tighten all the fittings to prevent oil leakage.
- Fill the reservoir with hydraulic oil (oil capacity of 10L). Operate carefully to avoid dust and other pollutants mixed with the hydraulic oil.

Note:

- ✧ ***Clean the impurities in the hydraulic line and remove the protective plug from the hydraulic cylinder.***
- ✧ ***When the hydraulic hose installation needs to go through the column, ensure the hydraulic hose***

won't touch any movable parts inside the column.

✧

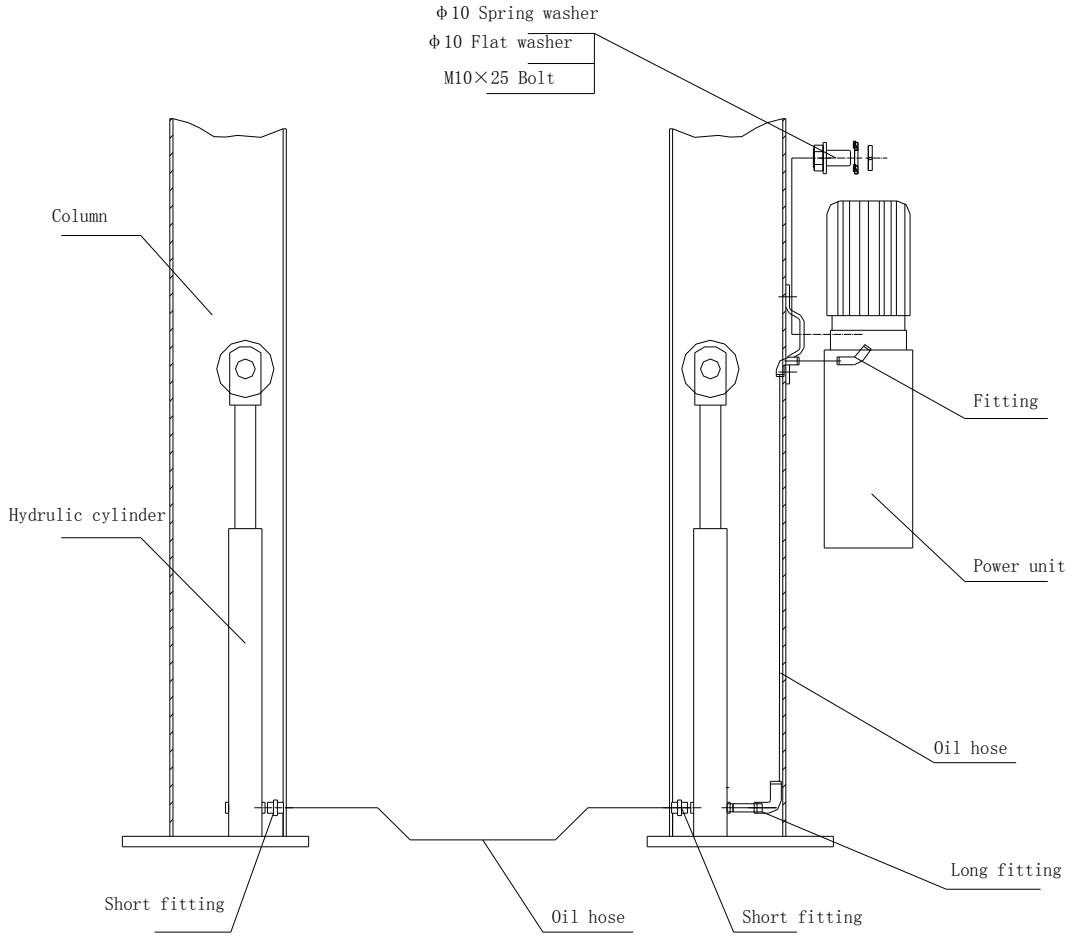


Fig. 9

5.2.8 Install the swing arm and guardrail

Install the swing arm, guardrail and door rubber pad as shown In Fig.10

⚠ ***Note:***

During the installation, lubricate the moving parts of swing arm and carriage if accessory, so that the swing arm can move freely.

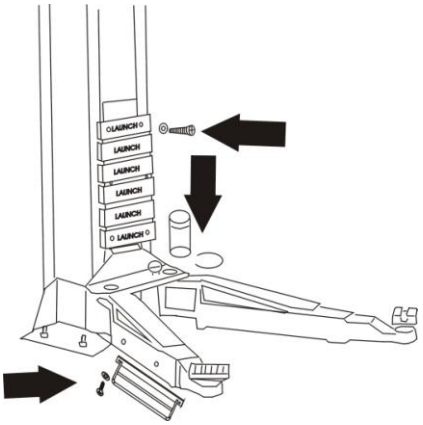


Fig. 10

5.2.9 Install the electric control box

- Install the base plate of electric control box on the back cover of the powerside column (Fig.11).
- Connect the electrical wiring as shown in Fig. 12.
- Install the electric control box casing to the base plate of control box and use M5x12 screw to fix the electric control box casing onto the back cover of the column.
- Install the bottom case of the electric control box.

Note:

- ✧ ***This equipment needs NFB (non-fuse breaker) upon installation. This equipment does not include it. It should be bought and installed by users. The NFB is 16A.***
- ✧ ***The power cable is required to be greater than 2.5mm^2.***
- ✧ ***Coat the roller and carriage passage with the lubrication grease. Raise and lower the carriages twice without load t o see if they work well.***
- ✧ ***After the column is fixed, operate with load.***

Installation schematic diagram of electric control box

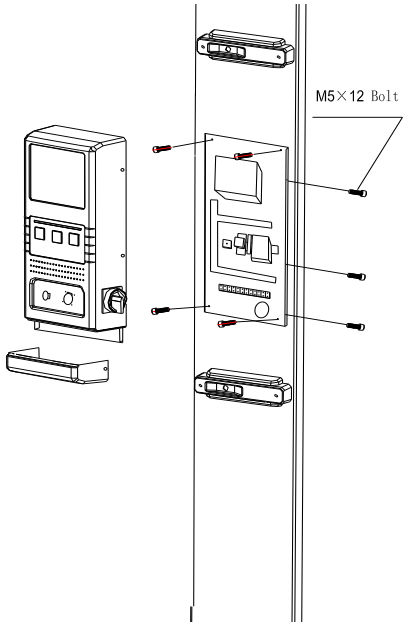


Fig. 11

Wiring diagram of TLT235SBA (TLT240SBA)

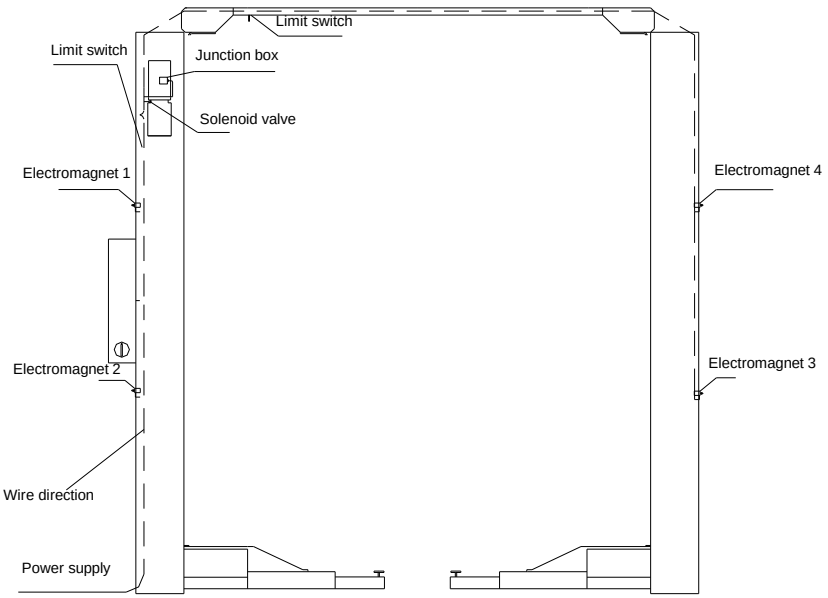


Fig. 12

5.2.10 Adjust the Steel chain

The steel chain has been adjusted properly by the manufacture (Fig. 13), making the swing arm move freely at the lowest height without scratching the ground. The customer can make fine adjustment for chains after the electrical and hydraulic installation. Before adjustment, lift the carriage to a high position and lower for 2 sec to engage safety lock, and then adjust the nut on the threaded end of the chain to the required position.

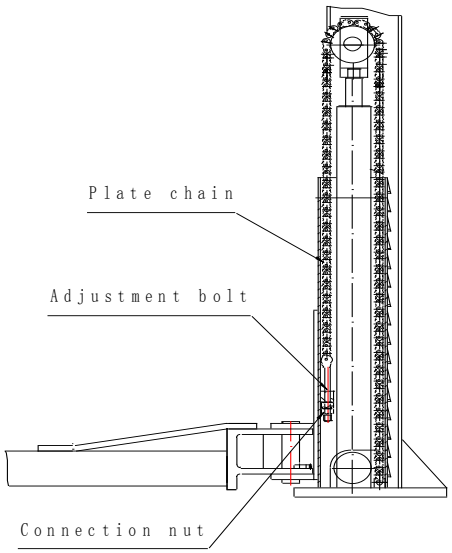


Fig. 13

5.2.11 Install and adjust the electromagnet safety mechanism

- Use bolts M5x12 and flat washer 5 to fix the electromagnet, and use bolts M5x12 to fix safety plate (as shown in Fig. 3) for powerside and offside column respectively.
- Adjust the electromagnet rear end nut. When the safety plate is under the safety status, the plate should contact the carriage; meanwhile, there is 1-2mm gap between the nut and the end of electromagnet. When the carriage rises, the safety orifice utilizes its inclined angle to push away the safety plate and rises progressively. The rattling sound can be heard clearly in the two columns. (See Fig. 3 and Fig. 4)
- Press UNLOCK button to actuate the electromagnet, and see if two safety plates can completely separate from the carriage safety orifice. (See Fig. 4)

Note:

✧ ***The electromagnet installation shall ensure free pulling and release. It is not allowed to have any jammed resistance caused by back cover or others.***

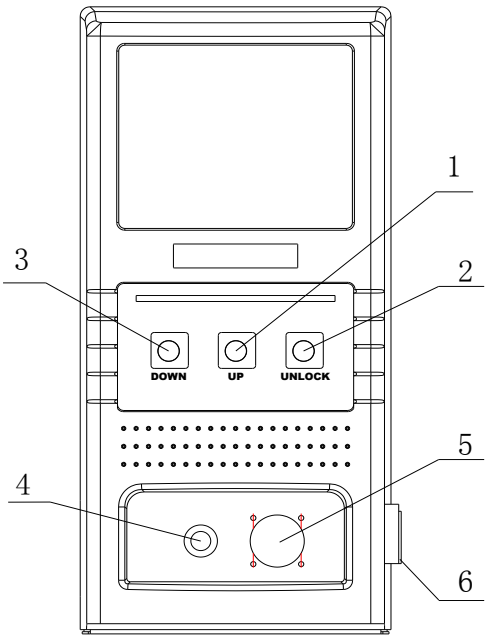
5.2.12 Install the floor plate cover

Use screws to fix the electromagnet cover. Install the floor plate cover to protect the oil hose and steel cables.

6. Lift Adjustment

6.1 Preparation before the adjustment

- Lubricate contact surface of the carriage and corners of column with general-purpose lithium grease. All sliding surface should be coated evenly from top to bottom.
- Fill hydraulic oil N32 or N46 to the oil reservoir of the power unit.



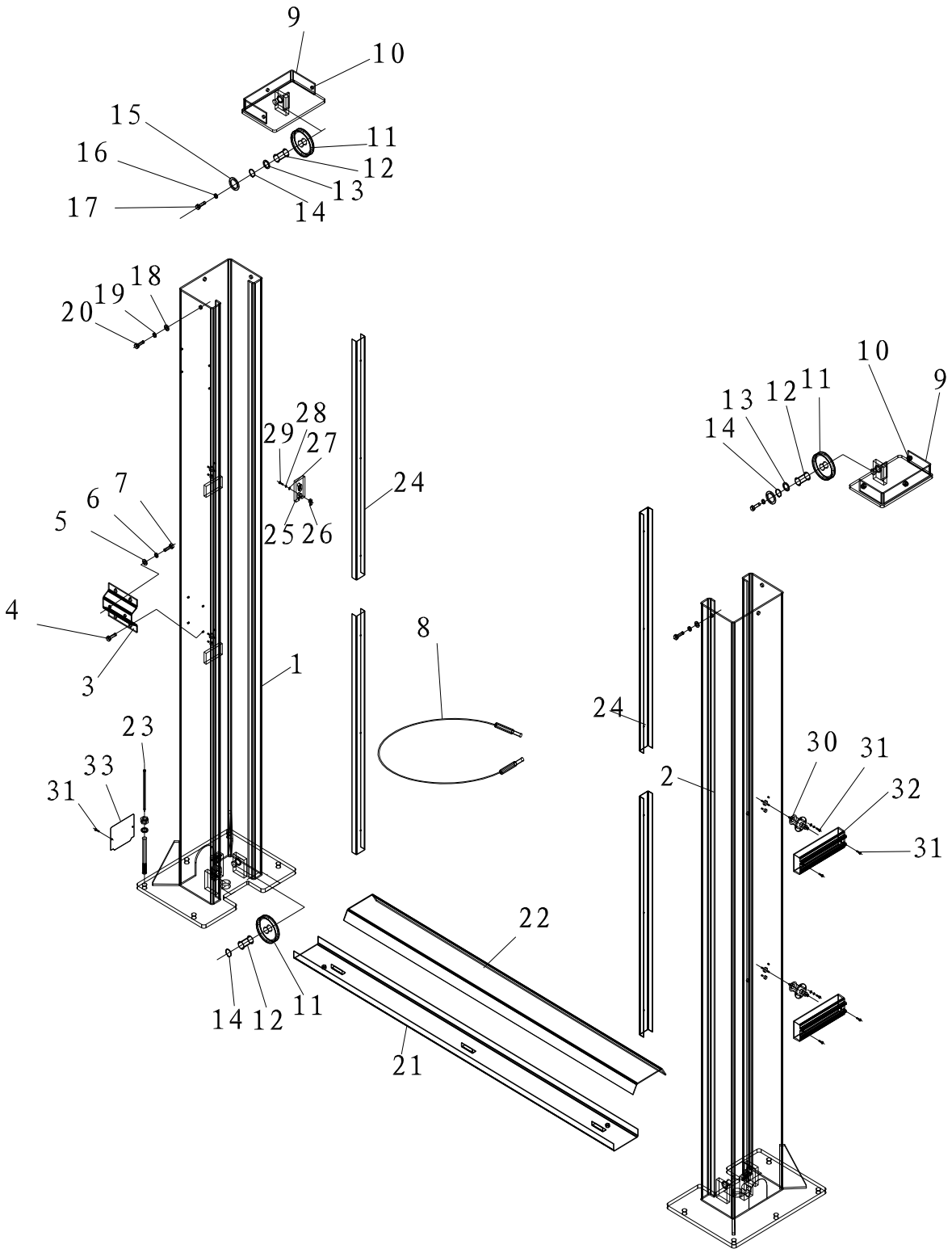
1. UP button 2. Unlock button 3.DOWN button
4. ES button 5. Socket of light 6. Power switch

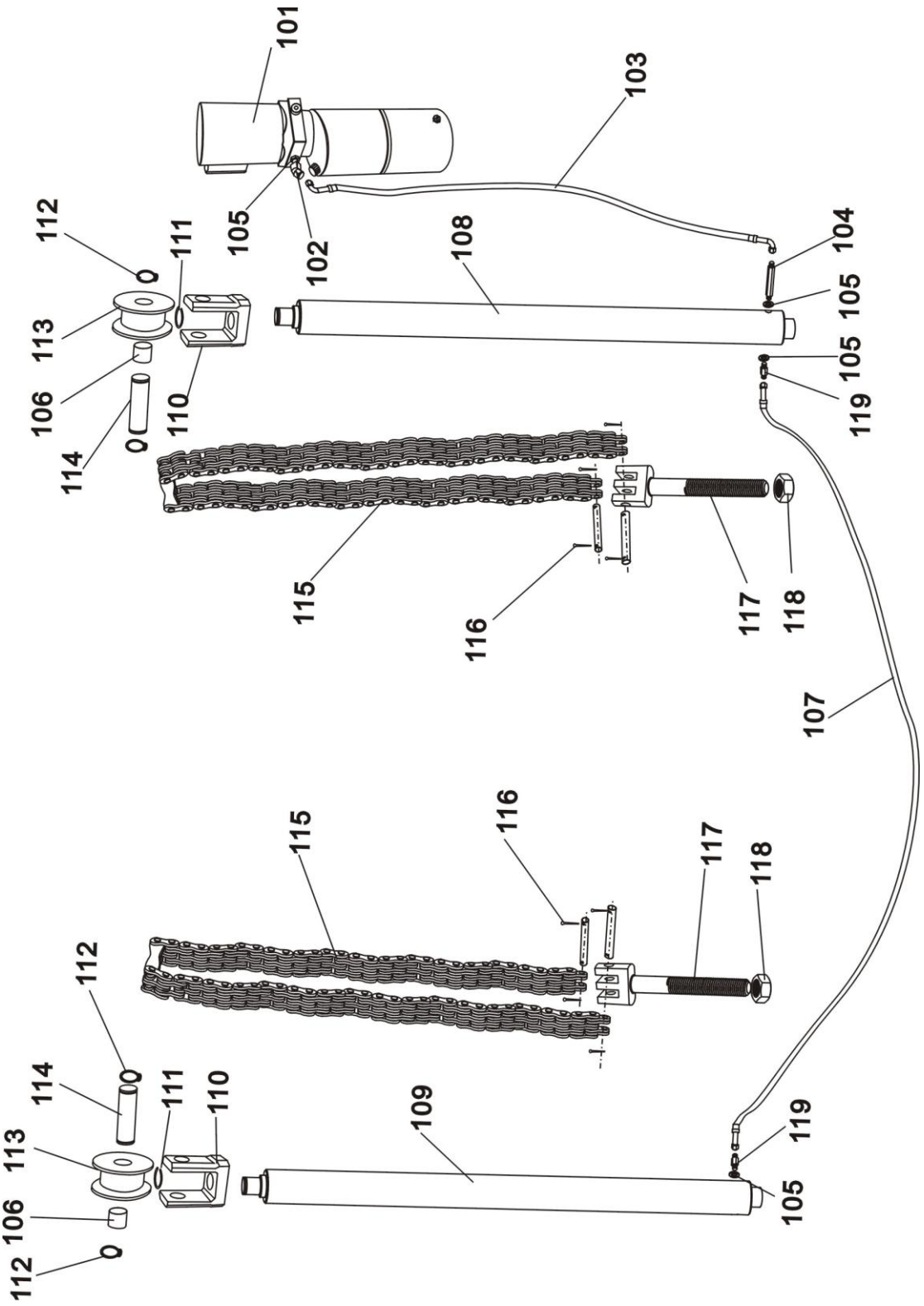
6.2 Adjustment procedure

- Check to see if the power supply is installed properly.
- Check to see if all the bolts are fastened.
- Press the UP button to start the motor, and the carriage rises. Release the UP button, and the carriage stops. To lower the carriage, first actuate the electromagnet by press the UNLOCK button. If it can't release the safeties, press the UP button to go up a little. Press and hold the UNLOCK button again, then press the DOWN button, the carriage will lower. Release the two buttons (DOWN and UNLOCK), the carriage will stop lowering. When the vehicle is raised at required height, press the DOWN button, making the electromagnet safety locked. Ensure the safe repairing under the vehicle.
- The hydraulic system may contain air due to new installation. To bleed the air, repeat the lifting and lowering for several times.
- The adjustment is completed.

7.List of the Lift components

This list is only used as the information for the maintenance and repair. Our company will not be liable for other uses. In case of damages to the components, purchase can be made from the LAUNCH and its sales agents based on the corresponding material code No in the list.

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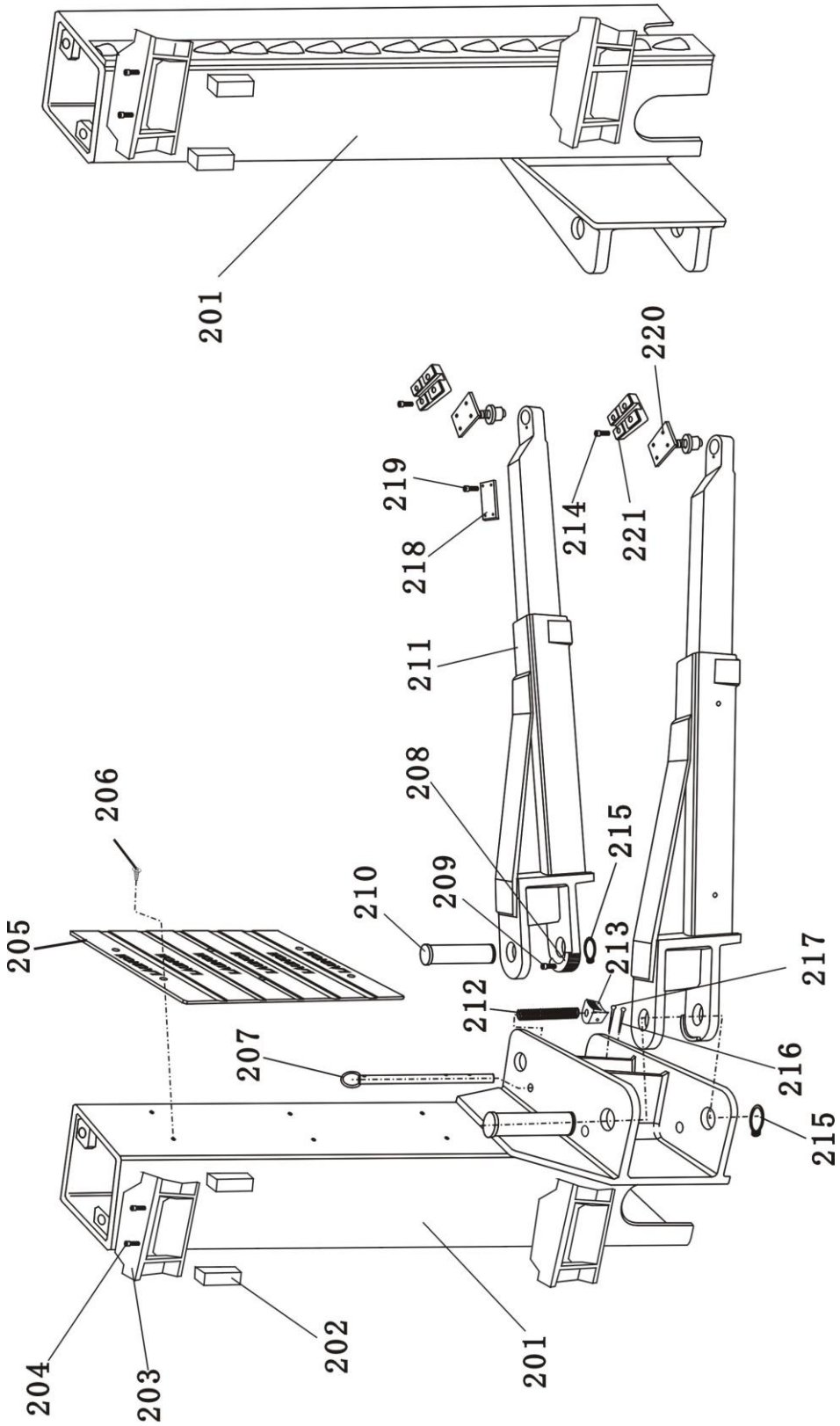
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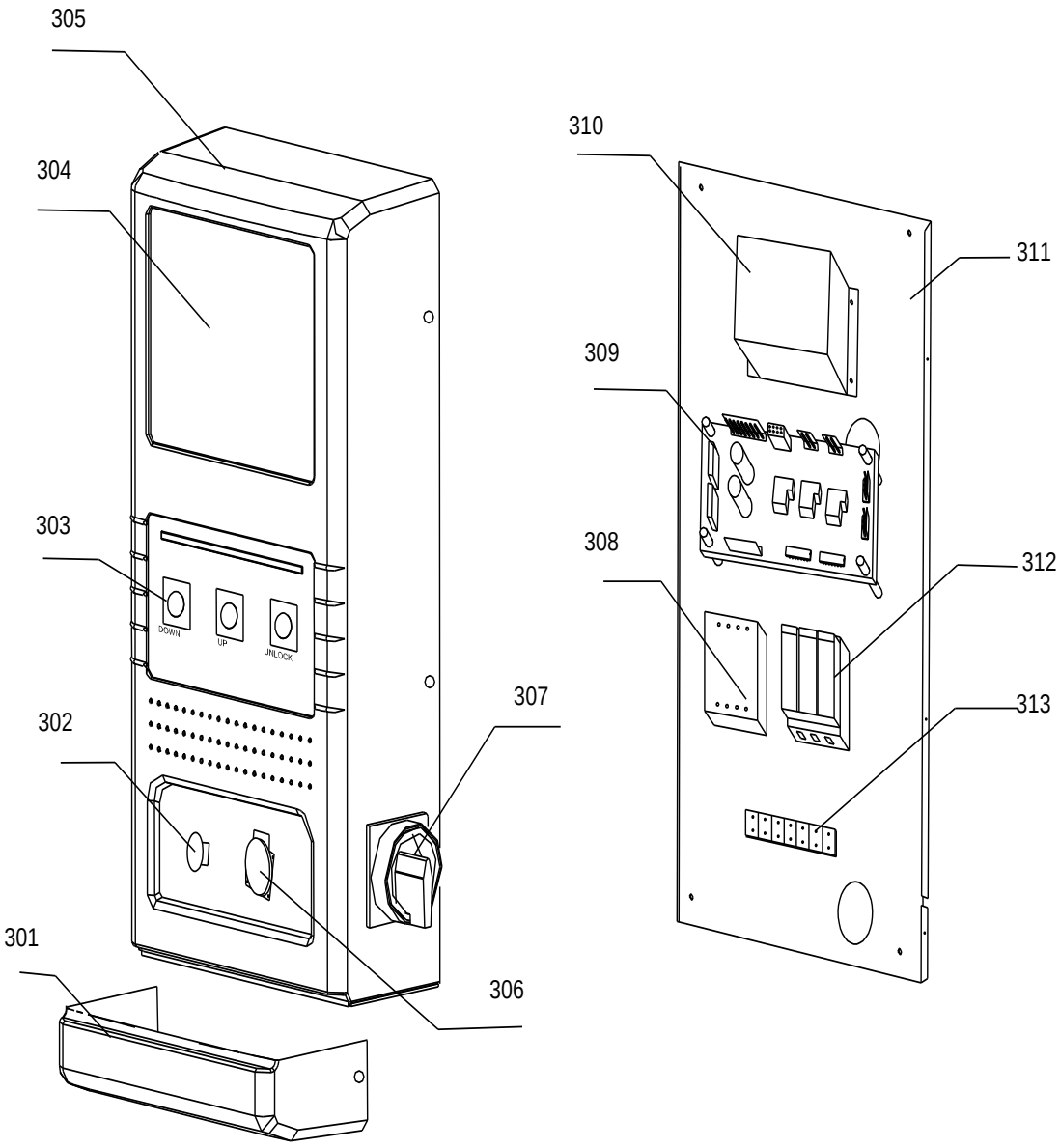
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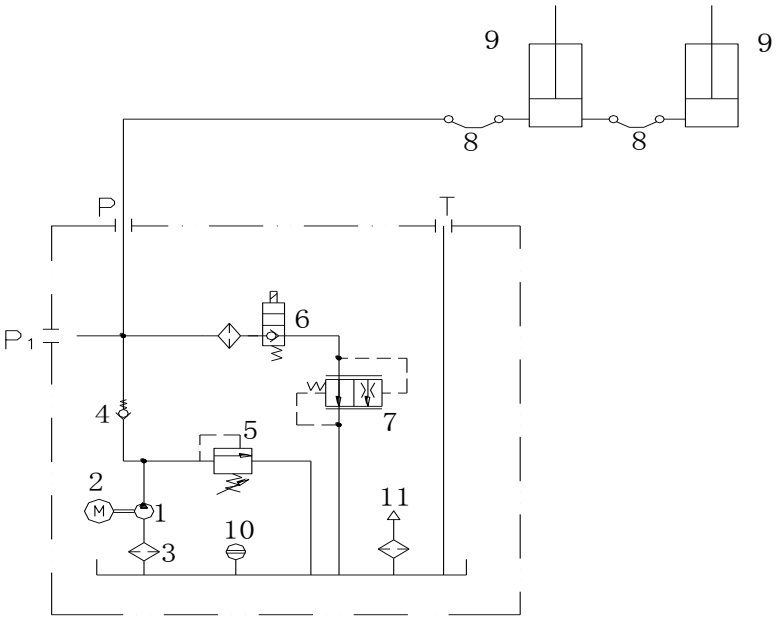
312
313
DOWN
UP
UNLOCK

No.	Code	Name
1	201020542	TLT235SBA powerside column
	201020374	TLT240SBA powerside column
2	201020546	TLT235SBA offside column
	201020725	TLT240SBA offside column
3	201011165	Installation plate of power unit
4	103020171	Screw M56X12
5	103040123	Flat washer 10
6	103040122	Spring washer 10
7	103020038	Bolt M10X25
8	103260126	Steel cable
9	201020381	Top cover assembly
10	103030129	Nut 12
11	104090045	Pulley
12	103200699	Bushing 2520
13	103040176	Washer
14	103050031	Returning ring 25
15	103050037	Returning ring
16	103040177	Spring washer 8
17	103020116	Bolt M8×16
18	103040110	Flat washer 12
19	103040044	Spring washer 12
20	103020104	Bolt M12×35
21	201021208	Floor plate
22	201020390	Floor plate cover
23	103020123	Anchor bolt M18X160
24	201011432	Protective cover inside the column
25	103200942	Safety block
26	201011198	Supporting block
27	103040133	Flat washer 6
28	103040140	Spring washer 6
29	103020099	Screw M6x12
30	103200960	Electromagnet
31	103010432	Screw M5x12
32	104120078	Electromagnet cover
33	201011236	Bottom cover of column
101		Power unit
102	103100170	Fitting M14×1.5（for domestic pump）
	103100171	Fitting G1/4"（for imported pump）
103	104120076	Oil hose
104	103100168	Long fitting
105	103040157	Seal gasket 14

106	103260098	Bush 3052
107	104120079	Oil hose
108	103260123	Main cylinder
109	103260129	Sub cylinder
110	103220054	Sheave seat
111	104060016	Returning ring 32
112	103050014	Returning ring 30
113	104090043	Sheave
114	103200973	Sheave axle
115	103200939	Steel chain
116	X103060340	Pin 2×26
117	103200938	Chain threaded end
118	103030131	Nut M16
119	103100170	Fitting
201	201020548	Carriage
202	104990132	Sliding block
203	201011855	Top board
204	103010473	Screw M10x30
205	104130191	Door rubber pad
206	103010452	Screw M8x16
207	103200979	Top rod assembly
208	103201746	Semi-gear
209	103010354	Screw M8x25
210	201010982	Pin axle
211	201020497	Swing arm
212	103110063	Spring
213	201011812	Gear block
214	103020093	Screw M8×16
215	103050030	Returning ring 40
216	103060342	Pin 3x26
217	103060346	Pin 5x40
218	104130186	Rubber pad on swing arm
219	103010414	Screw M5×8
220	201021192	Lifting pad assembly
221	104130189	Rubber pad
301	104010446	Bottom case of control box
302	102100090	Emergency button
303	102200306	Control board 2
304	104090050	Display board
305	104090055	Case of control box
306	102160392	Waterproof Socket

307	102100087	Power switch
308	102110059	Contactor
309	102200305	Control board 1
310	102130036	Transformer
311	103200932	Base plate of control box
312	102150053	Fuse
313	102160440	Terminal

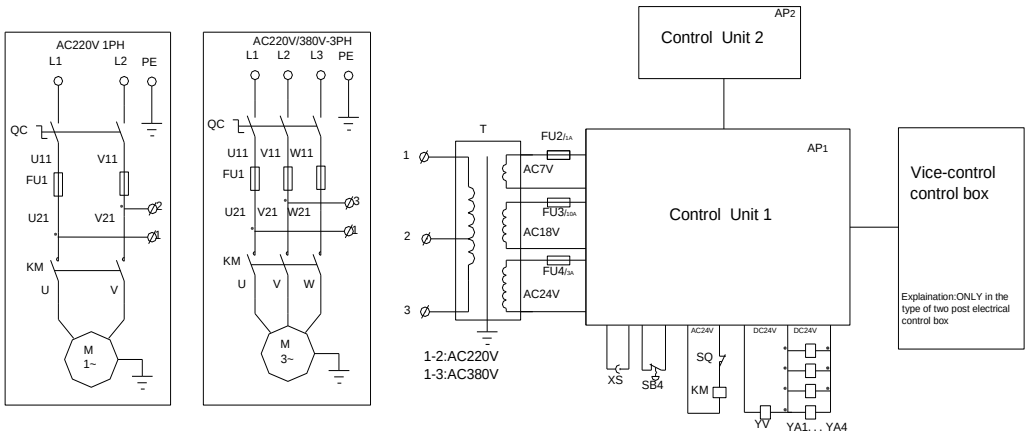
Diagram of the hydraulic system



1- Gear pump, 2- Motor, 3- Oil filter, 4- Check-valve, 5- Safety valve, 6- Solenoid valve,

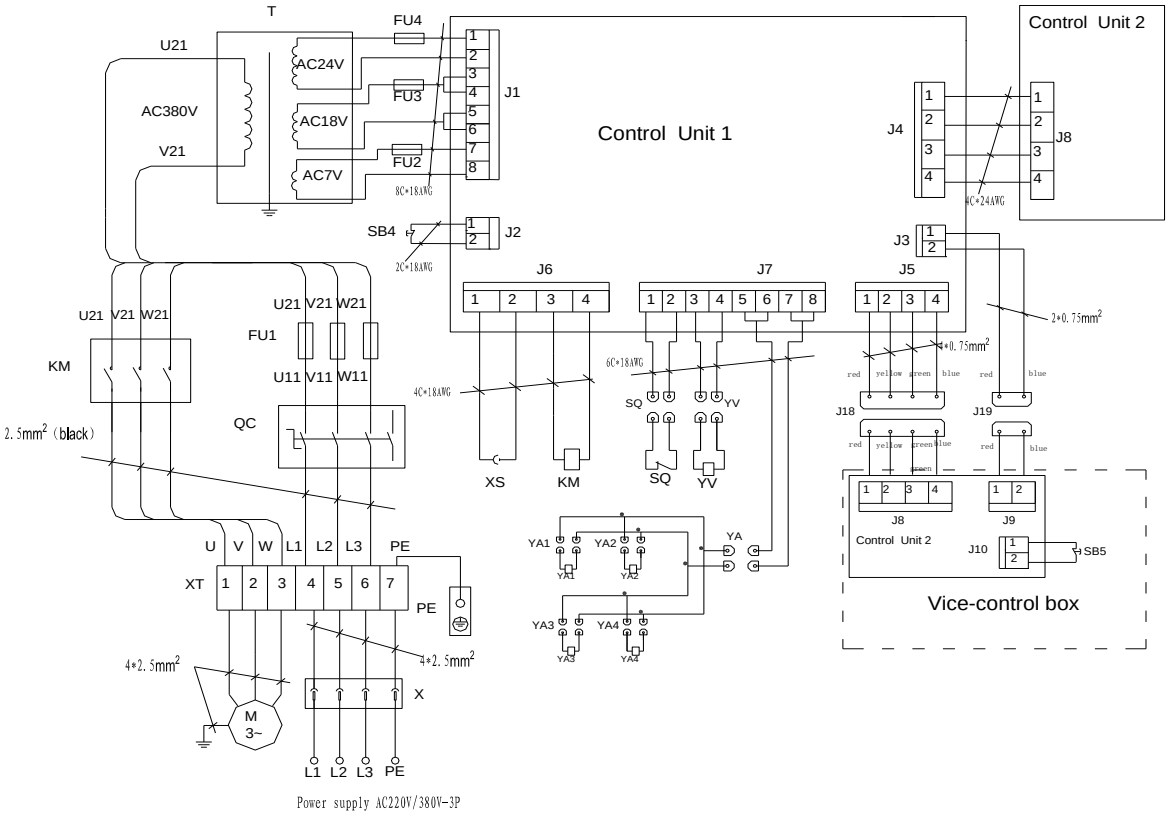
7- Servo flow-control valve, 8- Hose, 9- Hydraulic cylinder, 10- Level gauge, 11- Air filter

Diagram of the electrical system



KM-Contactor; M-Motor; QC-Power switch; T-Transformer; SB1-UP button; SB4-STOP button; YA1、YA2、YA3、Y4-Electromagnet YV-Solenoid valve; SQ-Limit switch; XS-Socket of light; FU-Fuse

Diagram of the wire connection



8. Safety rules of electrical system

1. ONLY the personnel who is trained or has professional knowledge can maintain the lift.
2. DON'T modify or omit the safety devices.
3. Reading the warning signs before operation.
4. Turning off the power and locking the main switch before eliminating the trouble.
5. If the air is too moist, watching out for getting an electric shock.
6. The room should be cleared, before the lift got power.
7. The control box can be opened ONLY in one condition that checking up the electrical equipments.
8. Without the authorization of manufacturer, CAN'T modify the circuit.
9. Confirming that the electrical accessories are accord with the specifications (including the colour code of wires), before changing them.
10. DON'T wear glasses with metal frame, necklace, ring, watch or bangle during the operation.